

ABSTRACT OF THE DISCLOSURE

A low power plasma generator is provided which can be fabricated in micro-miniature size and which is capable of efficient portable operation. The plasma generator comprises a
5 microwave stripline high Q resonant ring, which may be circular or non-circular, disposed on a dielectric substrate and having a discharge gap in the plane of the substrate. The resonant ring is one-half wavelength in circumference at the operating frequency and is matched to the impedance of the microwave power supply.
10 The voltages at the resonator ends at the gap are 180° out of phase and create an intense electric field in the gap, and a resultant discharge across the gap. The discharge is non-thermal and operates near room temperature and has an intense optical emission. The generator is well suited for low power portable and
15 other applications and can be readily fabricated by known microcircuit techniques. Alternatively, the gap of the resonant ring can extend through the substrate and in which the discharge is formed. A bias coil can be coupled to the ring to provide a bias voltage to the plasma. A feedback path can be provided for
20 self oscillation and closed loop frequency control.

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